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TITLE: Automated detection of
pornographic images

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382/260

ABSTRACT:

A method of detecting pornographic images,
wherein a color reference

database is prepared in LAB color space defining a plurality of colors representing relevant portions of a human body. A questionable image is selected, and sampled pixels are compared with the color reference database. Areas having a matching pixel are subjected to a texture analysis to determine if the pixel is an isolated color or if other comparable pixels surround it; a condition indicating possible skin. If an area of possible skin is found, the questionable image is classified as objectionable. A further embodiment includes preparation of a questionable image reference shape database defining objectionable shapes. An image with a detected area of possible skin is compared with the shape database, and depending on the results of the shape analysis, a predefined percentage of the images are classified for manual review.

22 Claims, 13 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 13

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Detailed Description Text - DETX (5):

FIG. 2 of the drawing illustrates an alternate embodiment of the color detection and shape detection steps of the present invention. A color detection process 40 includes a series of steps, each similar to steps 10 and

12 of FIG. 1 with each detection step (44, 76 and 82) focussing on a particular color type. A shape detection process 42 includes separate shape detection steps 48, 56 and 64, each similar to the shape detection 14 of FIG. 1. Each process (48, 56, 64) is for a different type of shape. Input 43 represents the reception/selection of a questionable image that needs to be analyzed. Block 44 represents the detection of a particular color type, such as "white" and involves the operations of blocks 10 and 12 as described in FIG. 1. If the pixel color is determined to be "skin" 46, the image is sent to a first shape detection process indicated for example as "face detection" of block 48 wherein steps similar to blocks 26 and 28 of FIG. 1 are performed. If the image is detected as a "face" 50, the image is classified as "portrait" and a manual check/inspection is done only infrequently (block 52). If the image is not a "face" 54, the image is analyzed to determine if it is a body part (block 56) i.e., other than a face. If it is not a body part (58), the image is classified as a "landscape", and this type is only inspected occasionally (block 60) i.e. only a small percentage of these images are inspected manually. If the image is a body part (62), a pose detection is done to determine if there is an erotic position (block 64). If it is determined that the pose is not erotic (66), this image is classified as a "swim suit picture" and the result of the detection may be a "parental guidance" notice attached (block 68). If the pose detection 64 indicates that the

image is erotic 70, it is
classified as objectionable and 100% manual
inspection is required prior to
allowing access (block 72).